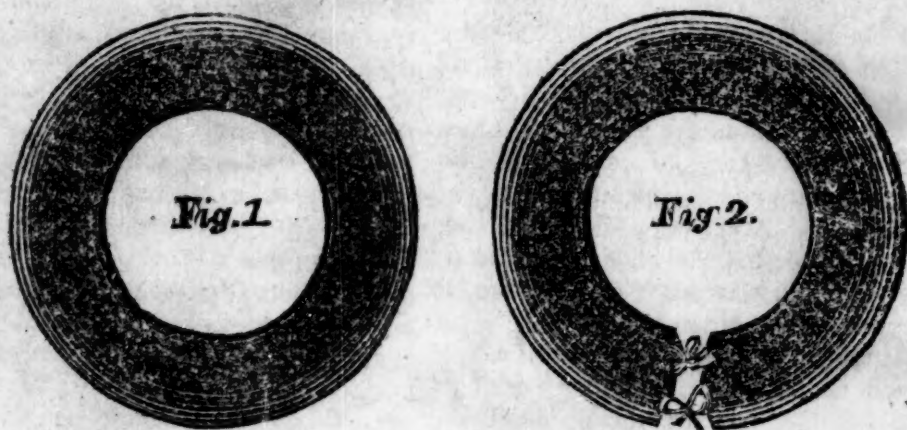


**AMERICAN**  
**MECHANICS' MAGAZINE,**  
**Museum, Register, Journal and Gazette.**

VOL. II.—No. 40.] SATURDAY, Dec. 24, 1825. [PRICE \$4 PER ANN.

Throw years away ?  
Throw empires and be blameless. Moments seize,  
Heaven's on their wing ; a moment we may wish,  
When worlds want wealth to buy. YOUNG.

Scheffer's Life Preserver.



## LIFE PRESERVER.

This appears to be the most portable, convenient and perfect invention of the kind that has yet been given to the public, and the easy manner in which it may at any time be applied to the body, will render it worthy the attention of mariners, as well as others whose business or pleasure may lead them on the watery element.

We give the description, together with the engraving, as published in the *London Mechanics' Register*:

"To the specific gravity of the human body very little attention has been directed; and the experiments, very small in number, which have been performed, to ascertain its weight compared with that of an equal volume of water, very little notice, for practical purposes, has been taken, and but few individuals can be found who are fully aware that man is so constructed as actually to float when placed upon water, although not so superficially, or in such position, without great care and exertion, as to preserve an adequate entrance for air into the organs of respiration.

The fact however is, that we are calculated to float conveniently for a considerable length of time, if we are possessed of sufficient self confidence, and some art in balancing the body. Not always long enough, it must be admitted, for complete protection against the disasters which so frequently happen on the ocean, or even on rivers and canals; on all of which such multitudes are now scattered, by the industrious and adventurous spirit of the age. Nor in cases of shipwreck does the usual additional support of a mast, an oar, or a plank, always suffice to lend that buoyancy, on account of their unsteadiness, which the perils of the deep often demand. More fixed appendages, of various descriptions, have lately been introduced to the notice of the public, under the appellation of life preservers; and boats upon a similar principle, under the name of life boats, have been constructed so

as to be secured against sinking, even when filled with water, and in the most tempestuous weather, for the purpose of rescuing those "who are ready to perish."

It has happened unfortunately with respect to most of the life-preservers as they have been termed, that some difficulty has attached to their conveyance, application, or effect which has either rendered them useless, or much less effectual than from their principle might have been expected: and accordingly in succession they have been disregarded. The importance of the object would not allow the attempt to be abandoned, and ingenious men still continue to exercise their inventive powers, in obviating the defects of their predecessors. The buoyancy of cork which was formerly much resorted to, has given way to the superior buoyancy of air, and jackets distended with this very light fluid, or attached vessels of other forms filled with it, have been occasionally adopted. The effort has at length been successful: and air, I will venture to pronounce, has become by the invention of Mr. Scheffer, in another than the acknowledged sense of the term a perfect life-preserver.

The simplicity and convenience of Scheffer's Life-Preserver must be at once perceived. It consists of a hollow cylinder formed without a seam and perfectly air tight, bent when distended with air and ready for use as in fig. 2nd; or it is what may be termed a cylindrical ring, also without the break which appears in the former represented in fig. 1. Of this ring, the external diameter is generally about 22 1-2 inches, the internal diameter about 12, and the diameter of the part containing the air about 5 1-2 the dimensions varying of course, by being specially adapted to the size of the person by whom it is designed to be employed. By its form it is well fitted for the place which it occupies, being situated beneath the arms; it does not press painfully upon the chest, and the suspension or support being placed so high, enables the lower part of the body and extremities, to act as a pendulum, in keeping the wearer



vertical or restoring him to that position if thrown aside by the force of the waves. The two holes, one in each ring, the only openings, receive a small stop-cock to which an ivory pipe is fixed. Through this pipe the air is injected by the mouth, and retained by the stop-cock; the adjustment and inflation only occupying the short space of one minute: when expanded it folds up into a very small compass, so as to be conveyed in the pocket; and is also very portable, its weight, as I ascertained by weighing one of them, being but twelve ounces.

During my late visit to Brighton, I had an opportunity of seeing Mr. Scheffer, when supported in the sea by his very valuable contrivance.—He was taken in a boat about a mile from the shore, and there threw himself into the water. He became immediately buoyant, and amused himself with swimming, or allowing himself to be tossed about by the waves for more than an hour. He had along with him a spare preserver, by which he managed to show, that in the manner represented in the vignette, he could have placed it upon a person in danger of sinking, and even have used several for different persons in similar danger, who would all be rendered safe, until they could have been collected and preserved by a life boat.—His experiment succeeded to the satisfaction of a large number of spectators. The situation from which the exhibition was viewed, the head of the chain pier, was particularly favourable for watching the motions of the adventurer; and the sea being very rough, gave us occasion to observe how effectually the buoyant girdle controlled that power by which an unprotected man must have been buried in the waves.

I have lately learned from Mr. Scheffer, that at Margate, Ramsgate, and Broad Stairs, he has repeated the trial in an equally conclusive manner, remaining each time about an hour and a half in the water; and producing equal conviction in the minds of the spectators, who were there, still more numerous than at Brighton, of

the superiority of this simple but most effectual contrivance.

GEORGE BIRKBECK.

#### NAVAL.

The editor of the Baltimore "Mechanics' Press," after some preliminary remarks on the leakiness and defective equipment of the Brandywine frigate, gives us to understand that had she been built there she would have been fitted out in a much superior manner. How this might be, it is not in our province to decide at present. The schooners of Baltimore have long maintained a decided preference in point of sailing over those of other ports in the United States.—Whether their peculiar construction could with advantage be applied to vessels of a larger class, remains yet to be proved,

The Brazilian frigate, now nearly completed, will however give us a fair opportunity of judging of their naval architecture in this respect, and we hope, for the credit of the nation, as well as the good of our mechanics, that she will "plough the waves" with more safety than the Brandywine did on her outward voyage, and be the means of giving them a portion of that custom of which we trust their merit makes them equally and justly deserving.

#### FINE ARTS.

We beg leave to call the attention of the lovers of the Fine Arts in general, the citizens of America in particular, and of all those who feel any ways grateful for the privileges they enjoy under our free and independent government, to the superb Etruscan painting of Washington, accompanied by La Fayette, before Yorktown, now exhibiting for a short time at Peale's Museum,—Broadway, from

whence it will be removed to the Capital.

Many of Washington's personal friends are yet living, who pronounce it a most admirable and correct likeness; the perfect finish, the life, the light and shade, shows the pencil of a first rate artist—and may we not say with joy that Mr. Peale has added another trophy to the Arts—an invaluable treasure to the nation as well as a monument of fame to himself?

#### IMPORTANT MISTAKE IN TAKING MAGNESIA.

*From the Family Oracle of Health.*

We have so frequently recommended magnesia as an excellent corrector of acidity of the stomach, heartburn, and sour belchings, that we think every thing important respecting its proper administration. We are indebted to Dr. Whitelaw Ainslie for some useful facts of this kind. In the most dangerous sorts of cholera morbus, or bile-flux, he found magnesia to be a sovereign remedy, answering better than even the stronger alkaline medicines, potass, soda, or lime water. He generally gave about two drachms and a half of the subcarbonate of magnesia in tepid water for a dose, and seldom required to give more than one such dose, which was usually sufficient to stop the purging and vomiting, and allay the distressing cramps, by neutralizing the acid which caused them. With magnesia alone, simple as it seems, he says he has saved the lives of hundreds.

How, then, it may be asked, has magnesia failed so often in the hands of others? Dr. Ainslie answers this question by showing that it has been improperly administered. At its failure, says he, given in the manner it appears to have been combined with milk, I am not at all surprised, as in this way its vehicle combined the very principle of acescency, which the absorbent powder itself was intended to remove; and I maintain that no stomach in a deranged state can re-

ceive milk, in any form, whatever it may do when the digestive power is undisturbed. If then even with milk, this medicine was found in some cases evidently to be of service, how much more so must it have been without it? In fact, magnesia with milk, on such occasions, I conceive to be the very bane and antidote combined, the one most admirably counteracting any good that could have been expected from the other.

#### NEW METHOD OF DRESSING HEMP AND FLAX.

Le Chev. Masclet, in a communication to the editor of the "Farmer's Magazine" of Edinburgh, gives an interesting account of M. La Forest's (an agriculturist of the department *de la Dordognes* in France) method of dressing Hemp and Flax, which will be found to preclude the necessity of water rotting or of steeping in boiling water, as in the old system. For this discovery M. La Forest was unanimously chosen a member of the Royal Academy of Sciences of Paris. We extract the following from the *Edinburgh Farmer's Magazine*:

"In his habitual and close examination of the nature and properties of those two textile plants, the flax and the hemp, and likewise of the spindle and the loom, M. La Forest found out (which is supposed to have remained undiscovered until now) that both the external coat and the internal filaments of the stem, are bound by two different kinds of a gummy substance; that the external one, which binds the outward coat or straw, is separable and soluble in water; that the other cannot be separated but in the form of dust, and is not soluble in water. The first he considers as a gum or rosin; to the second, which hecklers call oily essence or unctuous extract, he gives the more appropriate name of gluten. This is perfectly insoluble, and is found still remaining in the last and oldest rags of linen cloth. It has been fully ascertained that the



essential strength of the filaments, of both the hemp and the flax, consists exclusively in this gluten; and that it has been erroneously ascribed to the gummy and mucilaginous substance, by which the external coat is bound. This discovery has thrown quite a new light on the principle and process of what they call *demagogue* ungumming. This operation has been generally performed, to this day, by steeping the bundles of hemp and flax in either running or stagnant water: but in the mistaken notion that the length and strength of the fibres depended greatly on a due proportion of the gummy substance being preserved, and that they may be impaired by a protracted steeping, this operation of water rotting has been always incompletely managed; and it could hardly be better managed, as too short a steeping was inefficient, and a protracted one deleterious. There was, besides, the deadly nuisance of poisoning the air and water.

The several attempts made to substitute chemical or mechanical processes, for the old one of water rotting have uniformly failed, because they were generally impressed with the idea that they should leave the greatest possible proportion of the gum adhering to the filaments. Hence, farmers reverted to their old method of steeping, fully convinced that no mechanical apparatus could ever succeed without the assistance of chemistry.

Now, that an important distinction has been made in the nature and essential properties of the gummy soluble substance, and the unalterable insoluble gluten, the essential point consists in separating the one from the other; dissolving the gum, and preserving the minutest particles of the gluten. The invaluable result has been obtained by M. La Forest's discovery,

We have no drawing of M. La Forest's machine; and what we know of its principle and mode of action is, that it unites the several processes of the former method, or rather their combined effects, without any chemical operation, without the use of wa-

ter, or any system of wheels or rollers of any kind, either plain or fluted.—The inventor calls his machine a rural mechanical break; and so simple is its construction, that any intelligent farmer could make one for himself; it consists entirely of wood, and its price does not exceed 20 dollars.

An association was formed for the purpose of propagating the use of that beneficial machine, and superseding the dangerous practice of water rotting. At the head of the list is the name of the Duke of Orleans. Government was not backward in encouraging a discovery, which seemed to secure to France the merit of having solved the highly interesting problem of the dressing of flax and hemp by a dry process. An exemption from the stamp duty, besides other advantages, was granted to the inventor. The public themselves, by far the most impartial and unexceptionable of juries, were enabled to judge of the effects, at least, of this machine. At the last exhibition of the produce of national industry in the Louvre, several bundles both of hemp and flax were produced that had been dressed by the dry process of the mechanical break; their external appearance excluded the possibility of deception and doubt.

The whole length of each stalk was divided into three distinct parts, from the root upwards. About five inches of the thickest part, from the root, had the rind untouched, and in its raw and natural state. The remainder of the stalk was divided in two almost equal parts; one of which showed the preparatory working of the break on the stems and the rind that surrounds them. They were actually stripped of their external coat, or straw, the minute fragments of which had been gathered, without any mixture of the fibres of flax or hemp; they were kept in a box. Nothing remained of the fibres but a thin internal coating, in the shape of long narrow stripes, still bound together by their gum. The other and last part had these same filaments entirely divested of their gummy muciliginous matter, and herbaceous pith, which had been put in an-

other box. They were separated throughout the whole length, as they would have been by the finest heckle, showing their natural colour, and the whole of their pure vegetable gluten. They felt soft and silky to the hand, and required no other preparation to be actually spun.

The experienced agriculturists and manufacturers who have examined the specimens of flax and hemp prepared by the new process, agree in their opinions that the filaments of the stalk are entirely stripped of their gum, without any alteration of their fibres; and have preserved a greater degree of their strength and elasticity than could ever be expected from the best managed water rotting; that there is besides, in the whole preparation, a saving of at least two thirds of the ordinary expense, independently of the fibres being fuller and longer, with a much less quantity of tow.

It must not be forgotten that the external coat or straw, which, after water rotting, could be only partially employed in the making of notches, but chiefly as fuel, may be easily, as it drops from the dry break, converted into a paste for the making of paper, as a substitute for rags; a dear article, the price of which is constantly on the increase. The experiment has been made, and the produce of this new material, it is said, may be compared to the finest specimens of Chinese paper. We hope to be able soon to procure some of these specimens, both of the paper and of the stalk, showing the process of the new operation of which we speak.

#### TO DESTROY THE FLY ON TURNIPS.

*From the Housekeeper's Magazine.*

LIME sown by the hand, or distributed by a machine, is an infallible protection to turnips against the ravages of the fly. It should be applied as soon as the turnips come up, and in the same daily rotation in which they were sown. The lime should be slaked immediately before it is used, if the air be not sufficiently moist to render that operation unnecessary.—Or,

let the farmer carefully watch his turnips as they come up, and whenever the fly makes its appearance, take a certain quantity of brimstone, about 2 1-2 or 3 lbs. to an acre; put this into a kettle, and melt it in the turnip-field, in a situation the most eligible for the wind to carry the fume over the ground; take any combustible matter calculated to make a considerable smoke, which being dipped in the liquid brimstone, must be strewed all over the field in a state of ignition, and as close together, that the fumes of the burning matter may completely cover every part of the ground. The decoction of the bitter almond is more fatal to the lives of insects and worms than any other vegetable or mineral poison. It is made by infusing the bitter almond powder (the ground cakes that remain after expressing the oil, in warm water for 24 hours; 28lbs) which may be purchased for 5s.) will make 40 gallons, a sufficient quantity for a large garden.—The following method will be found equally efficacious in checking the ravages of this insect: Let the farmer, if he has no objection, bestow 5lbs of seed per acre, in order to secure his crop of turnips. If he sows *broad-cast*, let him medicate one half of the seed, as hereafter explained, leaving the other half unprepared. The latter may be sown one day, and the medicated a day or two after, so as to give a start to the other. The medicated will, in that case, escape from the attacks of the fly or beetle. If the slug, however, does appear, rolling in the night is necessary. If the farmer *drills* his turnips, after the land is prepared for the drill, 2 1-2lbs. of the unmedicated seed should be sown broad-cast, and a day or two afterwards the medicated seed sown in the drills. In this way a crop may be obtained, at least by the industrious farmer, who does not grudge a little trouble to secure a good one. He will find that the plants sown broad-cast, will give full employment to the fly, till the less savory plants in the drill pass the moment of danger. As to preparing or medicating the seed, sulphur is so obnoxious to the whole insect tribe, and at the



same time so favourable to vegetation, that it seems entitled to a preference. The turnip seed may be a little damped, and then mixed with the flour of sulphur, at the rate of two ounces of sulphur to one pound of seed; or let the seed be steeped in a liquor, formed by boiling three parts of lime to one of sulphur, and 100 parts of water. This steep is much approved of for all such purposes. It is not improbable that the same liquid in which wheat is commonly pickled, would prove a preservative against the fly. It may be proper to add, that when the season is very dry, it has been found a most useful practice to moisten the dung well before it is inserted into the drill to spread the dung very rapidly in the rows, and instantly to sow, at the rate of four pounds of turnip-seed per acre, *upon the dung*. The ground should then be gathered up into bouts, 27 inches wide, by the going and returning of the plough. The seeds are thus put in contact with the *wet dung*. Many perish, but a sufficient number escape to produce a good crop. In this case, the sowing any unmedicated seed broad-cast, may however be dispensed with entirely.

#### VISION AND MEMORY OF BEES.

*From the Family Oracle of Health.*

In insects, and other animals at the lower end of the scale of life, the greatest differences are to be found, and from our want of direct information slight analogies have frequently been magnified into an erroneous theory. For example, M. Prevost supposes, that the range of the vision of bees is very small from the extreme convexity of the eye, and Rogers has given the opinion a fine poetical turn in his "Pleasures of Memory." But if bees could not see farther than two inches before them, how could they direct their flight at so great a height as we sometimes observe them to do? It cannot be by the remembrance of scents as Mr. Rogers hints, for bees seem to be wonderfully deficient in memory. We have observed the same bee repeatedly visit the same flowers

in the course of a few seconds, apparently quite unconscious that it had already rifled them of their honey.

But we must not found too much on this single fact; for M. Huber, a Naturalist above all praise, observed, that some bees which had been supplied with honey in an open window during Autumn returned thither in the Spring, though the window had been shut and no honey put there during the Winter. If bees be like us, however, they will be able to remember every other thing better than scents.

M. Prevost's notion would apply to many other insects, such as the dragon fly, the butterfly, and the ant, whose eyes are all very convex, but as is well remarked by Marcel de Serres, the facts are against the theory, for we observe most of these insects take flight to escape from us long before we get within two or three inches of them. Yet the theory may notwithstanding, be correct: for their smell, or touch, or some sense unknown to us, may intimate to them the approach of danger.

#### TO DETERMINE THE ECONOMY OF A COW.

*From the House Keeper's Magazine.*

The annual consumption of food per cow, if turned to grass, is from one acre to an acre and a half in the summer, and from a ton to a ton and a half of hay in the winter. A cow may be allowed two pecks of carrots per day. The grass being cut and carried, will economise it full 1-3d. The annual product of a good fair dairy cow, during several months after calving, and either in summer or winter, if duly fed and kept in the latter season, will be, an average of seven pounds of butter, per week, from five to three gallons of milk per day. Afterwards a weekly average of three or four pounds of butter from barely half the quantity of milk. It depends on the constitution of the cow, how nearly she may be milked to the time of her calving, some giving good milk until within a week or two of that period, others requiring to be dried eight or nine weeks previously.

IMPROVEMENT ON STEAM BOILERS FOR  
BURNING LEHIGH COAL, &c.

MR. EDITOR,—I have recently examined into the principles of Mr. Joseph Ives' improvement, by which the valuable hard coals now coming into universal use, can be most advantageously employed in furnaces of steam boilers of any construction, old or new, as well as in every other description of furnaces. It consists of any required number of furnaces, having fuel tubes, which pass through the boiler, (the furnaces being placed therein) and their outer sides being in contact with the water, impart the heat thereto so effectually that the gas, when it passes into the chimney, is deprived of nearly all its caloric.—An air draught will, in many cases, suffice; but Mr. Ives, in order to make sure of his mark, has introduced the bellows, to be worked by the steam engine, by which the most intense heat that can be obtained from the coals in question is applied to the boiler.

The principle is patented, and has been successfully in use some time, on a small scale: but an eight or ten horse power engine boiler will be completed in a week or ten days, when Mr. Ives intends to invite the public to inspect his improvement. I anticipate great advantages to our steam boat proprietors, and workers of machinery, requiring a heavy artificial power, from this improvement, and do most sincerely hope the ingenious inventor may, in this instance, at least, realize his proportion of benefit from it.

I learn that the necessary steps have been taken to secure this valuable improvement in Europe.

A FRIEND TO USEFUL IMPROVEMENT.

## CURE FOR THE GARGET IN COWS.

*From the House Keeper's Magazine.*

This disorder is very frequent in cows after ceasing to be milked; it affects the glands of the udder with hard swellings, and often arises from the animal not being clean milked. It may be removed by anointing the part

three times a day with a little ointment composed of camphor and blue ointment. Half a drachm or more of calomel may be given in warm beer, from a horn or bottle, for three or four mornings, if the disorder is violent.

## MOCK SUNS.

On the 7th May, 1823, when the sun's lower limb had just dipped the water's edge, at the Cape of Goodhope, the Rev. Mr. Fallows observed several parhelia, viz. four on the left and three on the right hand of the sun, and all cut by the horizon, like the real sun. They had the same shape as the real sun, and were as high, but not so long. When the upper limb of the sun came in contact with the horizon, it and the mock suns appeared as bright spots upon the water's edge, and one of them instantly vanished.

## TO CURE THE REDWATER IN CATTLE.

*From the Housekeeper's Magazine.*

Take 1 ounce of bole armoniac, 1-2 an ounce of dragon's blood, 2 ounces of Castile soap, and 1 drachm of roche alum. Dissolve these in a quart of hot ale or beer, and let it stand until it is blood-warm; give this as one dose, and if it should have the desired effect, give the same quantity in about twelve hours after. This is an excellent medicine for changing the water, and acts as a purgative: every farmer that keeps any number of cattle, should always have some doses of it by him.

## RAISING PINE APPLES BY STEAM.

*From the London Mechanic's Register.*

If the following information which we have received be correct, we shall soon have pine apples as plentiful as oranges; and this rich fruit, the taste of which is unknown to more than nineteen-twentieths of the British people, will form the *bonne bouche* of the good folks in the pits and galleries of our theatres, and be hawked about the streets "three for a shilling." The cultivation of pine apples in this



climate has hitherto, we believe, been a matter of some difficulty and uncertainty; and we have been assured, that notwithstanding the high price at which they are sold, they scarcely remunerate the grower for his trouble. It is probable, however, that in this article, as in many others, the price is artificially kept up, and the production purposely limited, to prevent its becoming less an article of luxury, and therefore less valuable to those who consider scarcity and high price as the only criterions of excellence. Were pine apples cultivated generally upon even the present system, we might, perhaps, obtain for four shillings that for which we now pay fifteen; but the result would be very unsatisfactory to the cultivator, for the price would still be too high for general consumption, and too low to maintain the reputation of the fruit, as one with which no Alderman or Bishop could dispense, if he pretended to good taste, or the means of treating his friends properly. It is with pine apples as with Champagne wine, they are both excellent things in their way; but if we reduce their price to just such a scale that they may be obtained by the middling classes, we take away their value in the estimation of the rich, and without so reducing them, they will not be generally used, nor remunerate the producers by the increased amount of consumption. Whether Champagne wine will ever become the beverage of those who now content themselves with "heavy wet" and "blue ruin," is a great question; but they have at least the prospect of getting pine apples cheap, and of drinking pine apple brandy. A manufacturer in the country, who has a steam engine on his premises, and a considerable portion of superfluous steam, has conceived the idea of growing pine apples by means of this superfluity. The steam is introduced under the roots of the plant, and the warmth and moisture together operate so powerfully upon it, that it soon arrives at maturity; whilst the body of the plant, being freely exposed during the day to the open air, acquires a firmness and healthiness which contributes power-

fully towards the fine flavour of the fruit, and renders it very superior to that which is produced in close hot-houses. We have not yet had any means of judging how far the economy of this principle is carried, but we can at least assure our readers, that it is no longer theoretical. We have seen and tasted pine apples so produced, and certainly no flavour could be more delicious. In a few days we may probably be enabled to give a more minute account of this new mode of cultivation, and the exact expenditure which attends the same.

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#### PRESERVATION OF SEEDS.

*From the Housekeeper's Magazine.*

A late celebrated Peruvian botanist has asserted, that the most delicate seeds of American plants may be sent to Europe in the highest preservation, by being enveloped in that kind of raw brown sugar which always keeps its humidity. When the seeds are to be sown, it is only requisite to immerse them in lukewarm water, which will take off the sugar.

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#### RIVER ON FIRE.

The editor of the Sparta, Tennessee, paper, mentions the novel circumstance of the Catskill river being on fire at the salt wells of Wm. Denton. In boring for salt water in the bed of the river, the workmen struck upon a rock containing a vein of sulphurous gas. The gas soon ascended to the top of the water, agitating it, and passing off in bubbles—one of the workmen applied a torch to the gas, as it arose from the river—it took fire, and burnt with great violence, and ascended in a large column, forty feet in height, and appeared to burn down to the very bed of the river. It continued several days in this manner to attract the attention as well as curiosity of the surrounding country.

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#### A GOOD LAXATIVE POWDER

Ten grains of jalap, twenty grains of cream of tartar, fifteen grains of ginger—mix.

## CABINET MAKER'S GUIDE.

*From the Lond. Mechanics Magazine.*

Every Carpenter is acquainted with a little work under this title, which has been published for some years, and held deservedly in considerable estimation. It must be admitted, however, that it was open to much improvement, particularly in the practical application of the rules and cautions necessary to be observed by the workman to ensure success in his operations, and that it left many subjects connected with the general plan wholly untouched. In the present edition these deficiencies have been very ably supplied, by a hand evidently well and practically acquainted with the art of cabinet-making in all its branches. It not only embodies all that was useful in the original Cabinet-Makers Guide, and adapts to practice the rules there contained, but contains a great deal of new matter of the most valuable description. We would particularly instance the additions under the head of Varnishing, French Polishing, Gilding, and Buhl work; as also an Appendix of very useful Tables, which show, by inspection, the superficial content of any board or plank without having recourse to duodecimals, or cross multiplication. Altogether the work leaves little to be desired; and being as cheap as it is complete, ought to be in the hands of every cabinet-maker, chair-maker, japanner, gilder, and lackerer. We shall quote, as a specimen of the original matter it contains, the following useful directions to workmen, with respect to the choice and management of their tools:—

“With respect to choosing the tools used in the trades to which I have al-

luded, the most necessary, and in which all may be comprehended, are planes, saws, and chisels; and we will consider them with respect to the wood they are manufactured from, and the steel which form the cutting part of them. And, first, beech is in general and ought to be *always* used, for the purpose of the stocks, handles &c. as it is of a tough texture, and not liable to split or warp so much as any other. Now there are two kinds of beech, usually known by the names of black or red beech, and the white beech; the former is by far the best in every respect, and may be always known by its colour and texture, which is darker and more hard in substance; the white is also more apt to warp, and soon wears with use; it should therefore always be rejected as improper. Again, if you examine a piece of beech endways, you will perceive the grain run in streaks, which, among workmen, is called the *beat* of the wood; and in all planes this grain or beat, which is the hard fibrous particles of the wood, should run in a direction perpendicular to the face of the plane, which in that case appears full of little hard specks; whereas, if the beat runs parallel to the face, it will appear in irregular streaks, which situation of the grain should always be avoided, as the face will be apt to wear uneven, and more subject to warp and twist. Again, in saw-handles and stocks for bits, the beat should run in the same direction as the saw-blade, or in the same direction as the stock, when laid on its side. In moulding-planes it is very frequently the case, that pieces of box are let into that part of the face that forms the quirk of the mouldings; but that, when possible, should be avoided, as the texture of the two woods are very different, and the different temperature of the atmosphere will cause a difference in their contraction; and consequently the plane will be liable to cast. If it is at any time introduced I would recommend only a small piece just at the mouth of the plane, firmly dovetailed in, which will not be so apt to derange the accuracy of the plane.

“With respect to saws, chisels, and



other edge-tools, their goodness depends upon the quality of the steel, which should be uniform throughout, and it is always better to have them tempered rather to hard than soft, for use will reduce the temperature: or if at any time it is necessary to perform the operation yourself, the best method I can recommend, is to melt a sufficient quantity of lead to immerse the cutting part of the tool. Having previously brightened its surface, plunge it into the melted lead for a few minutes, till it gets sufficiently hot to melt a candle, with which rub its surface, then plunge it in again and keep it there till the steel assumes a straw colour (but be careful not to let it turn blue;) when that is the case, take it out, rub it again with the tallow, and when it is sufficiently hot plunge it into cold spring water or water and vinegar mixed. By a proper attention to these directions and a little practice, every workman will have it in his power to give a proper temper to the tools he may use. If a saw is too hard, it may be tempered by the same means: but as it would be not only expensive, but, in many cases, impossible to do it at home, a plumber's shop is mostly at hand, where you may repeat the process when they are melting a pot of lead. But here observe, that the temper necessary is different to other cutting tools; you must wait till the steel just begins to turn blue, which is a temper that will give it more elasticity, and, at the same time, sufficient hardness.

"With respect to choosing your brushes for varnishing, it is necessary that they possess elasticity combined with softness, and that the hairs are sufficiently mixed, so that taking hold of one hair, it will not pull out or separate from the rest. The larger brushes are usually made of bristles, the smaller of camel's hair; the former must be firmly tied to the handle, and the string well glued. The latter are best put into a tin case and after being used must always be cleaned according to the directions given in this work.

"By paying proper attention to

these directions, and a little care, the workman will be enabled to keep his tools in order, and to select such as are proper for the purpose they are intended."

#### DIFFERENT DEGREES OF HEAT IMBIBED FROM THE SUN'S RAYS BY CLOTHS OF VARIOUS COLOURS.

*From the Housekeeper's Magazine.*

Walk but a quarter of an hour in your garden when the sun shines with a part of your dress white, and a part black; then apply your hand to them alternately, and you will find a very great difference in their warmth. The black will be quite hot to the touch, the white still cool.

Again. Try to fire paper with a burning glass. If it is white, you will not easily burn it; but if you bring the focus to a black spot, or upon letters written or printed, the paper will immediately be on fire under the letters.

The fullers and dyers find black cloths, of equal thickness with white ones, and hung out equally wet, dry in the sun much sooner than the white, being more readily heated by the sun's rays. It is the same before a fire, the heat of which sooner penetrates black stockings than white ones, and is apt sooner to burn a man's shins. Also beer much sooner warms in a black mug set before the fire, than in a white one, or in a bright silver tankard.

Black cloths are not so fit to wear in a hot sunny climate, or season, as white ones; because, in such cloths the body is more heated by the sun when we walk abroad, and is the same time heated by the exercise, which double heat is apt to bring on putrid fevers. Soldiers and seamen, who must march and labour in the sun, should, in the East or West Indies, have a uniform of white. Summer hats, for men or women, should be white, as repelling that heat which gives head-achs to many, and to some the fatal stroke called by the French the *coup de soleil*. Ladies' summer hats, however, should be lined with black, as not reverberating on their faces those rays which are reflected upwards from the earth or water.

The putting a white cap of paper or linen within the crown of a black hat, as some do, will not keep out the heat, though it would, if placed without. Fruit-walls being blacked, may receive so much heat from the sun in the daytime, as to continue warm, in some degree, through the night, and thereby preserve the fruit from frosts, or forward its growth.

#### KEDGING, OR A NEW MODE OF SAILING.

We extract the following from Capt. Hall's journal, written on the coasts of Chili, Peru, and Mexico, a work recently published in England.

The manner in which we proceeded down the river is so curious, and as far as I know rare, that I shall attempt to make it intelligible to readers not nautical.

In the navigation of rivers with many windings and shoals, the chief danger is, that the tide will force the ship either on the bank, or on some shoal; and this will happen although she be under all sail, and with a good breeze of wind; for the tide sometimes runs so rapidly, as to hustle the ship on shore, before the sails can be made to act. When the wind is blowing faintly, and is not quite fair, the danger of this happening is much increased. On such occasions, instead of sailing in the usual manner, with the ship's head foremost, no sails whatever are set, and the stern is made to go first, an operation technically called *Kedging*.

If when a tide is running, the anchor by which the vessel is riding be raised off the ground, she will, of course, immediately begin to drift along with the stream, and ere long, most probably run aground upon one of the shoals. The ship, it must be observed, when under these circumstances, can make no progress through the water, but is drifted along like a log; and consequently the rudder can have no effect in directing her course; she is, in short, entirely at the mercy of the tide. The operation mentioned above, is a device to produce a relative

motion between the ship and the water, in order, by that means, to bring the directing power of the rudder into action. This is accomplished by allowing the anchor to trail along the ground, instead of lifting it entirely up as in the first supposition. It is known as a nautical fact, that the degree of firmness with which an anchor holds the ground depends, within certain limits, upon its distance. When it is immediately under the bows, that is, when the cable is vertical, it has little or no hold; but when there is much cable out, it fixes itself in the bottom, and cannot be dragged out of its place. In the operation of *kedging*, the cable is hove or drawn in, till nearly in an upright position; this loosens the hold of the anchor, which begins to trail along the ground, by the action of the tide pressing against the ship. If the anchor ceases altogether to hold, she will, of course, move entirely along with the tide; but if it be not quite lifted up, and merely allowed to drag along the ground, it is evident that the ship thus clogged, will accompany the tide reluctantly, and the stream will, in part run past her. Thus, a relative motion between the vessel and the water is produced, and consequently a steering power is given to the rudder.

In our case the tide was running three miles an hour; and had the anchor been lifted wholly off the ground, we must have been borne down the river exactly at that rate; but by allowing it to drag along the ground, a friction was produced, by which the ship was retarded one mile, and was, therefore, actually carried down at the rate of only two miles, while the remaining one mile of tide ran past, and allowed of her being steered, so that in point of fact she became as much under the command of the rudder as if under sail, and going at the rate of one mile an hour.

This power of steerage enabled the pilot to thread his way among the shoals, and to avoid the angles of the banks; for by turning the ship's head one way or the other, the tide was made to act obliquely on the opposite



side, and thus she was easily made to cross from bank to bank in a zig-zag direction. It will sometimes happen, that with every care, the pilot finds himself caught by some eddy of the tide, which threatens to carry him on a sand bank; when this takes place, a few fathoms of the cable are permitted to run out, which in an instant allows the anchor to fix itself in the ground, and the ship becomes motionless. By now placing the rudder in a proper direction, the tide is soon made to act on one bow, the ship is sheered over, as it is called, clear of the danger, and the cable being again drawn in, the anchor drags as before. The operation of kedging requires the most constant vigilance, and is full of interest, though rather a slow mode of proceeding; for it cost us all that night and the whole of the next day and night to retrace the ground which we formerly had gone over in ten hours.

#### WATCH-MAKING.

SIR,—I send you for insertion a specification of a train of wheels, which I am persuaded is not generally known, and which may be beneficial to some ingenious clock-maker, who is called upon, or wishes to make a timepiece, that shall not only show the seconds, minutes, and hours of the day, but also the day of the month, the exact degree the sun occupies in every sign of the zodiac through the year, with many other things he may think fit to have engraven on the dial. Let a wheel of twenty four teeth, or a pinion of twelve, fixed upon the arbor that goes round by the common movement in twelve hours, turn a wheel of sixty, or thirty, having a pinion of six on its arbor, turning another of sixty-seven, and its pinion of six will turn a wheel of one hundred and fifty-seven in 365 days, five hours, and fifty minutes. This is perhaps the nearest calculation which can be found for tooth and pinion, for a hand to be carried round the dial in a solar year.

Your humble servant,

A. B. C.

*Note.*—If the first is a pinion of twelve, the second must be thirty, or they may be both halved again without affecting the motion.

#### LINEN AND COTTON SPINNING IN FRANCE

*From the Mechanic's Magazine.*

M. Charles Dupin, in a discourse lately delivered on the progress of French industry since the commencement of the nineteenth century, relates some facts deserving of notice. Alluding to a proposition to offer a prize of a million of francs to the mechanician who should invent a mode of spinning linen of the same degree of fineness as is attained in that of cotton, he remarks, that if this prize had been maintained, the amount of the recompense would have undoubtedly led to the attainment of the object so much desired, notwithstanding the difficulties which the solution of such a problem presents. The spinning of hemp and linen by mechanism, he remarks, although far from perfection, has made remarkable progress: being first used in England and Scotland for the coarsest cloths, such as sailcloth, it has been particularly improved since the peace of 1814, so as to be applied to finer fabrics. This improvement has been introduced into France, and there are several manufactories where it is used with success. One at Oreil, in the department of Seine and Oise, is particularly cited.

Considerable improvement, he says has been made in the weaving of sail-cloths, and the French imitate, successfully, those of Holland and Russia. The manufacture of damask table linen has been also successfully introduced into France. At first, it was made only by means of machinery, which was to be found no where but in Silesia. When the French conquered Prussia, the minister of the interior procured to be brought from that country a model of the looms used in Silesia, with a workman acquainted with the manner of setting them up, and working them. These were deposited at the conservatory, where pupils were regularly instructed in the

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weaving of damask cloths. This kind of industry soon spread from one extremity to the other of France. In 1823 still further improvements were made, and damask cloths of beautiful designs and remarkable fineness and evenness, were woven, of three and two thirds metres, or about four yards in width.

A still greater progress, we are told has been made in the manufacture of cotton fabrics. In this branch of industry, the English were in advance of the French, full thirty years, viz. from 1770, when Arkwright set in motion his mechanism for spinning cotton, to 1800, when the French began this species of manufacture. The French government offered it great encouragements. They invited artists from Great Britain, capable of building the machines, and deposited these at the conservatory at Paris, and in the principal towns, where they might be studied and imitated. The success of these measures was so rapid, that, in 1806, the Judiciary of the Exhibition declared, that, for the future, it was necessary to offer encouragements only to the spinning of numbers of a fineness exceeding 60. —From that period, the French establishments produced threads fine enough for the making of the most beautiful muslins. At the exhibition of 1819, they presented threads of all degrees of fineness, from No. 120 to 200. To give an idea of the tenuity which these numbers indicate, he remarks, that a kilogram of cotton (2 1-5 lbs.), spun to the number 200, and extended, in a right line, would measure 400,000 metres (about 200 miles) in length, and that a pound of cotton, spun to the same number, would inclose seven times the city of Paris, supposing it to be 7 leagues in circumference.

France in 1800 imported 9,246,000 kilogramms of cotton. In 1811, notwithstanding her increase of territory, only 8,266,60 kilogramms; but in 1822 reduced to her ancient limits, 21,573,400 (about 180,600 bales.)

#### VARNISH USED FOR INDIAN SHIELDS.

Shields made at Silhet, in Bengal, are noted throughout India for the lustre and durability of the black varnish with which they are covered. Silhet shields constitute, therefore no inconsiderable article of traffic, being in request among natives who carry arms, and retain the predilection for the scimitar and buckler. The varnish is composed of the expressed juice of the marking-nut, *semecarpus annacardium*, and that of another kindred fruit, *holigarna longifolia*.

The shell of the *semecarpus anacardium* contains between its integuments numerous cells, filled with a black, acrid, resinous juice which is found, though less abundantly in the wood of the tree. It is commonly employed as an indelible ink to mark all sorts of cotton cloth. The colour is fixed with quicklime—The cortical part of the fruit of the *holigarna longifolia* likewise contains between its lamina numerous cells filled with a black thick acrid fluid. The natives of Malabar extract by incision, with which they varnish targets.

To prepare the varnish according to the method practised in Silhet, the nuts of the *semecarpus anacardium*, and the berries of the *holigarna longifolia* having been steeped for a month in clear water, are cut transversely, and pressed in a mill. The expressed juice of each is kept for several months, taking off the scum from time to time. Afterwards the liquor is decanted, and two parts of the one are added to one of the other, to be used as varnish. Other proportions of ingredients are sometimes employed, but in all the resinous juice of the *semecarpus* predominates. The varnish is laid on like paint, and when dry, is polished by rubbing it with an agate or smooth pebble. This varnish also prevents destruction of wood, &c. by the white ant.

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### INQUIRIES.

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#### EXTRACTING PRINTER'S INK FROM PARCHMENT.

SIR,—Being one of those unfortunate individuals in that much calumniated profession, the law—I am almost fearful of addressing you, lest you should in the style of the lord chancellor, give me a quietus at once. I how-



ever casay the task, though it is of a rather singular nature, being neither more or less than to ask your advice under the following circumstances.

Some months ago, I had upwards of one hundred leases printed on parchment, and through a mistake made on the copy sent to the printer, a great number of words are inserted that should not have been so. Unless I can find out some method of extracting the ink from the parchment, the whole will become useless. I therefore take the liberty of soliciting you to acquaint me with the means of making the parchment available.

I should have applied at a chemist's shop but did not like to run the risk of being taken up on suspicion of felony, as so much has been said and done lately in altering bankers cheques.

Your obedient servant, E. F.

Is there any instrument for ascertaining the point at which the juice of the sugarcane should arrive, before it is put into the still, in order to extract the spirit? If such an instrument, or the following is in existence, what is it called, and where may it be purchased?

Is there any instrument for ascertaining the point at which the sugar cane should arrive, when it is on the fire, in order to withdraw the sugar from it? If so, what is the instrument, &c.?

#### TEST OF BAY SALT.

The test for ascertaining the quality of St. Ubes, commonly called Bay Salt, and the reason why some samples dissolve sooner than others? A house in this city very extensively engaged in the manufacture of provisions, purchased a cargo of very fine looking salt two years since, but complaints were received from all quarters of there not being salt enough, though the usual quantity was put into the cask. The salt was of a fine white colour and large grain,

#### VIOLIN VARNISH.

SIR,—Having completed the making of a Violin, I shall feel obliged to any of your intelligent Correspondents, who would inform me how I could make or procure a good transparent oil varnish, that would not be detrimental to the sound, or destroy the beauty of the wood, as I find the common varnishes have both these qualities.

I am, Sir,  
Your obedient servant,  
W. FELL.

#### CAUSE OF SALT BEEF SPOILING.

Some beef, in tierces, has been returned from England, unsaleable, having become black. The cause is required. Does it arise from the salt or saltpetre? and how could it be remedied?

#### ART OF TURNING.

I should be obliged to any of your readers to favour an amateur turner with the best apparatus for elliptical turning, and also with the mode of turning cubes with mathematical truth. I am informed it has been done so correctly as to produce a degree of cohesion sufficient to suspend no less than six pounds weight.

I am, Sir,  
Your obedient servant,  
TURNSCREW.

#### ANSWER TO INQUIRY.

##### EGYPTIAN ORE.

SIR,—In answer to your correspondent, "Quibius," in No. 38, I beg to say, that during the last year I purchased an article made of the Egyptian Ore; and as it was represented to me that it would wear equal to gold, I ventured to make a present of it to a member of my family; but such is the nature of the metal, that it was very soon discovered (suspected at least) that I had imposed upon the lady. The colour changes miserably, and it does not keep at all the appearance of gold.

THOMAS HARRIS.

**VARIETY.***From London and other Papers.*

The wife of a man named William Denner, residing at No. 4, Chapel court, in Bath, lately presented him with a child, which has not less than five grandmothers; viz. two great grandmothers, and one great great grandmother. They are thus enumerated:—the father's mother, the mother's mother, the grandfather's mother, the grandmother's mother and the grandmother's mother's mother. The child was baptised on Sunday last at the Abbey Church, when the grandfather and great grandmother stood sponsors. The great great grandmother has reached the extraordinary age of 101 years!

To a person who regretted to the celebrated Dr. Samuel Johnson that he had not been a clergyman, because he considered the life of a clergyman an easy and comfortable one, the Doctor made this reply:—"The life of a conscientious clergyman is not easy, I have always considered a clergyman as the father of a larger family than he is able to maintain. No, Sir, I do not envy a clergyman's life as an easy life; nor do I envy the clergyman who makes it an easy life."

**SELECT THOUGHTS.**

Idleness is the rust of talent and of virtue.

The world is a volume written by the hand of God, containing but three leaves—the heavens, the earth, and the sea.

Going to law is the art of cutting one's throat with a pen

Man is a sort of tree which we are too apt to judge of by the bark.

The lives of women are mostly comedies in three acts, the first of which is devoted to love, the second to pleasure, and the third to devotion.

Law and Physic are the hot beds of vice and disease.

An amorous old man resembles Mount Etna, the head of which is covered with snow, and the heart full of flame.

The loaded tree always bends with its fruit, as virtue stoops beneath humility.

A woman should be from home but three times—when she is married, when she is christened, and when she is buried.

Logic has been compared to a spider's web, which exhibits more art than solidity—to a lobster, in which there is more picking than eating—to a faggot of thorns, which prick on all sides—and a fish full of bones.

**NOTICE.**

In consequence of the removal of our Printing Office, the delivery of the present number of the Mechanics' Magazine has been unusually protracted.

Communications for the 'American Mechanics' Magazine' post paid, and addressed to  
**C. S. WILLIAMS,**  
No. 252 Broadway, will receive due attention.

PRINTED BY  
**HUTCHINSON & BAILEY,**  
NO. 120 HESTER-STREET,

Where printing will be executed in all its various branches, in a neat style, and on the most reasonable terms.